PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Kenichiro Sato et al. : Group Art Unit: 1752

Appln. No.: 09/620,708 : Examiner: CHU, J

Filed: July 20, 2000 :

For: POSITIVE PHOTORESIST COMPOSITION FOR FAR ULTRAVIOLET EXPOSURE

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Kenichiro Sato, do declare and state as follows:

I am a citizen of Japan.

I graduated from Osaka University, Faculty of Engineering, Course of Applied Fine Chemistry in March 1992.

Since April 1992 I have been employed by Fuji Photo Film Co., Ltd. and have been engaged in research and development of photoresist photosensitive materials for semiconductors at the Yoshida-Minami Factory Research Division of the company.

I am a co-inventor of the invention described and claimed in the above-named application, and I am familiar with the subject matter disclosed by the application as well as the Office Action dated October 3, 2001 concerning the application.

In order to demonstrate the unexpected superiority of the present invention, the following experimentation was conducted by me or under my supervision.

EXPERIMENTATION

Positive photoresist composition was prepared in the same manner as in Example 4 of Hada et al except for using the resin (1) in Example 1 of the present invention instead of the copolymer A4. Positive photoresist composition for comparison was prepared in the same manner as in Example 4 of Hada et al. The positive photoresist compositions were evaluated on Sensitivity, Resolution and Edge Roughness in the same manner as in Examples 1 to16 of the present specification. The results are shown in Table A below.

TABLE A

Resin (100 parts by weight)	Photo-Acid Generator (2 parts by weight)	Solvent (680 parts by weight)	Sensitivity (mJ/cm^2)	Resolution (μm)	Edge Roughness (nm)	Remarks
Resin (1) of the invention	PAG-D	PGMEA	26	0.14	18	Invention
Copolymer A4 of Hada et al	PAG-D	PGMEA	68	0.15	30	Comparison

PAG-D: bis(p-tert-butylphenyl) iodonium trifluoromethane sulfonate.

PGMEA: propyleneglycol monomethyl ether acetate.

As is apparent from the results in Table A above, the positive photoresist composition of the present invention exhibited superior Sensitivity, Resolution and Edge Roughness, to the positive photoresist composition for comparison, and it is understood that the present invention has a specific effect.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectively submitted,

Date: Jan. 30, 2002

Kenichiro Sato

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